<u>**Remarks**</u>

The following is in response to the Advisory Action mailed December 8, 2004.

Claim 44 has been amended to reintroduce "non-cross linked" into the claim in response to the Examiner's comment in the first paragraph on page 2 of the Advisory Action.

In response to the second paragraph on page 2 of the Advisory Action, the patentability of the present invention over the disclosure of the reference relied upon by the Examiner in rejecting the claims will be apparent based on consideration of the previously submitted remarks as well as the following remarks.

The process of Kasai et al. always begins with seed particles prepared by soap-free emulsion polymerization, wherein the seed particles (start particles) have a size in the range of 0.1 to 0.9 μm. The process of Kasai et al. can be used to prepare larger diameter particles that in turn can be used as seed particles to prepare even larger particles (i.e., a multi-step seed polymerization process). The process of Kasai et al. can also be a "one step" process to produce product particles of desired size.

However, the process according to the present invention uses seed (start) particles with different properties than the seed particles of Kasai et al. The seed particles used by Applicants contribute to a more feasible process than the process of Kasai et al.

In the process of Kasai et al. the new features are (1) that the polymerizable monomer is finely divided in aqueous medium so that the monomer droplets are not larger than 0.8 μm and (2) that the emulsion monomer droplet size, Dm, in a semi stable condition shall satisfy the expression $0.5xD<Dm<3.5xD$, wherein D is the desired product particle diameter. As long as these conditions are fulfilled, it is claimed that the process will work, independently of the seed particle size and the swelling ratio (the amount of monomer divided by the amount of seed particles). The process of Kasai et al. is thus controlled by the droplet size of the emulsion made of the polymerizable monomer in a semi stable condition, wherein the semi stable condition is clearly defined. It follows from these teachings that Dm is the only decisive factor for determining whether the Kasai et al. process will produce a desired product or not.

Table 1 at column 16 of Kasai et al. illustrates this, and by calculating 0.5xD and 3.5xD from the given set of data it is clearly seen how the process works:

Dm of the used polymerizable monomer emulsion is given to be 3.2 μm (column 15, line 58).

	Ex 1	Ex 2	Ex 3	Ex 4	Ex 5	Comp 1	Comp 2	Comp 3
D	1.0	1.9	2.8	4.0	6.0	0.9	8.6	12.9
0.5 x D	0.5	0.95	1.4	2.0	3.0	0.45	4.3	6.45
3.5 x D	3.5	6.65	9.8	14.0	21.0	3.15	30.1	45.15

In Comparative Example 1 the desired product particle size is 0.9 μm and Dm is above 3.5xD. In Comparative Example 2 the desired product particle size is 8.6 μm and Dm is below 0.5xD. In Comparative Example 3 the desired product particle size is 12.9 μm and Dm is below 0.5xD. In each of the Comparative Examples, wherein Dm is outside the required range, the process fails. In Examples 1 to 5 Dm lies within the interval 0.5xD to 3.5xD and the process works fine. Therefore, Kasai et al. teach that the success of their process and the particle size obtained therefrom depends on the droplet size of the emulsion droplets made of the polymerizable monomer in a semi stable condition.

On the contrary, in the present invention, the seed particles (start particles) themselves and their use in the process is the key feature, which is not obvious from Kasai et al. This creates a more feasible process than the process of Kasai et al.

Dispersion polymerization (as in Applicants' claimed invention) is different from soap-free emulsion polymerization (as in Kasai et al.) in several respects. First, the monomer and the initiator are dissolved in a polar organic solvent and as polymerization starts the particles precipitate out from solution and grow to their final size. Second, dispersion polymerization yields seed particles in the size range of 1 to 15 μm. Third, the molecular weight of polymers formed from dispersion polymerization is very different from the molecular weight of polymers formed from emulsion polymerization (much lower) or from polymers made by multistep seed polymerization processes (as in Kasai et al. process).

Applicants have surprisingly discovered that the seed particles made by dispersion polymerization have a very good swelling capacity, i.e. above 5 times their own volume. Polymerizable monomer can be swelled into these particles until their final swelling capacity is reached. There is thus a proportional increase in achievable particle size until this maximum swelling ratio. The desired particle size is controlled by the swelling ratio, i.e. the amount of monomer divided by the amount of seed particles. (See the paragraph bridging pages 6 and 7 of Applicants' specification.)

It is well known that when the start particles consist of any general polymer particle, the absorption of monomer or swelling capacity of the start particle is very limited and will never exceed a ratio of 5 (new monomer to polymer particle on volume basis). (See the first full paragraph on page 2 of Applicants' specification.) However, in the present invention the start particles have the ability to absorb or be swollen with new monomer in huge amounts by adding the monomer directly to the start particles dispersed in water as continuous medium (i.e. in one step polymerisation). The monomer diffuses through the water phase and becomes absorbed in the start particles without the need of any other measures. If attempts are made to swell more than the maximum capacity, the remaining monomer will be present in the water phase surrounding the product particles, and the product particles may be recovered and easily separated. Applicants' claimed process is both simple and robust compared to the process of Kasai et al. Furthermore, Kasai et al. do not teach or suggest that the start particles comprise non-crosslinked polymer particles having a swelling capacity above 5 times their own volume, as required in Applicants' independent claim 44.

The process of the present invention offers freedom from limitations of prior art teachings. Kasai et al. require the determination of the metastable monomer emulsion droplet size. If the desired product particle size is outside the given relation 0.5xD<Dm<3.5xD, sophisticated, tedious adjustments must be made to the monomer mixture in order to modify this metastable condition.

For the reasons stated above, as well as the reasons previously set forth, the invention of the pending claims is clearly patentable over Kasai et al.

Therefore, in view of the foregoing amendment and remarks, it is submitted that the application is in condition for allowance and such allowance is solicited.

Respectfully submitted,

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